

REMARKS

Applicants gratefully acknowledge the allowance of claims 2, 3, 8-23, 28, 30-42, 44, 47, and 48. Applicants also gratefully acknowledge the statement that claims 4, 25, 43, 45, 46, and 50 contain allowable subject matter. Claims 4, 31-34, 39, and 44-46 have been amended to correct typographical errors. Claim 50 has been canceled. Claims 1, 24, 43, and 49 have also been amended. No new matter has been introduced. Applicants reserve the right to pursue original claims and other claims in this and any other application.

Claims 43 and 49 stand objected to as lacking proper antecedent basis. Applicants have amended claims 43 and 49 to obviate the objection. Accordingly, Applicants respectfully request the withdrawal of the objection and allowance of claims 43 and 49.

Claims 1, 6, 7, 24, 26, and 27 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,809,309 ("Kwon") in view of U.S. Patent No. 5,313,080 ("Jung"). Applicants respectfully traverse this rejection.

Claim 1 recites a "pixel sensor cell comprising: a substrate; a photoconversion device comprising a region of a first conductivity type at a surface of the substrate and a region of a second conductivity type below the first conductivity type region, said photoconversion device having a pinning voltage; a gate, wherein at least a portion of said gate is located directly over said photoconversion device for changing said pinning voltage; a charge collection region for receiving charges from said photoconversion device; and a transistor for transferring charge from said photoconversion device to said charge collection region."

Claim 24 recites a “processing system comprising: a processor; and an imager coupled to said processor, said imager comprising an array of pixel sensor cells, each pixel sensor cell comprising: a photoconversion device located within a substrate and comprising a region of a first conductivity type at a surface of the substrate and a region of a second conductivity type below the first conductivity type region and said photoconversion device having a pinning voltage; a gate located over said substrate and at least a portion of said gate located directly over said photoconversion device for changing said pinning voltage, wherein said gate comprises a dielectric layer and a polysilicon layer; and a readout circuit for said photoconversion device comprising at least an output transistor.”

Applicants respectfully submit that the cited combination does not teach or suggest the above claim limitations. Courts have generally recognized that a showing of a *prima facie* case of obviousness necessitates three requirements: (i) some suggestion or motivation, either in the references themselves or in the knowledge of a person of ordinary skill in the art, to modify the reference or combine the reference teachings; (ii) a reasonable expectation of success; and (iii) the prior art references must teach or suggest all claim limitations. *See e.g., In re Dembiczaik*, 175 F.3d 994 (Fed. Cir. 1999); *In re Rouffet*, 149 F.3d 1350, 1355 (Fed. Cir. 1998); *Pro-Mold & Tool Co. v. Great Lakes Plastics, Inc.*, 75 F.3d 1568, 1573 (Fed. Cir. 1996); and MPEP §§ 706.02(j) and 2143 *et seq.* Furthermore, the “[t]he teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art and not based on applicant’s disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).” MPEP §706.02(j). Applicants respectfully submit that Kwon and Jung are not properly combinable. In particular, it would not have been obvious to a person having ordinary skill in the art to combine the teachings of Kwon and Jung as suggested by the Office Action.

Kwon is directed to a "CMOS image sensor in which a charge storage gate is formed at one side of a photodiode region to increase charge capacity for each cell." Kwon at col. 1:11-13. By contrast, Jung is directed to an "interline transfer CCD image sensor." Jung at col. 1:11-12. Jung explains the role of a gate electrode (7) in a CCD image sensor as follows: the "image signal charge generated from the photodiode 3 is transferred to VCCD region 4 by a VCCD clock signal voltage applied to the gate electrode 7." Jung at col. 4:11-13. *See also* Jung at FIG. 1. The CMOS imager of Kwon includes a transistor for transferring charges. Further, the charge storage gate (68) in Kwon is designed to transfer "the charges of the photodiode region...to a portion below the charge storage gate when the charges are generated" to "increase charge capacity for each cell." Kwon at col. 3:15-18 and col. 2:65-67. Thus, there is no need or motivation to use the gates of Jung in Kwon's pixel. As such, it would not have been obvious to a person having ordinary skill in the art to provide Jung's gate electrode (7) in the device of Kwon to achieve a pixel sensor cell in which "at least a portion of said gate is located directly over said photoconversion device for changing said pinning voltage," as recited in amended claims 1 and 24. Accordingly, Applicants respectfully submit that amended claims 1 and 24 are allowable over the cited combination, and request the withdrawal of the rejection.

Claims 6 and 7 depend from amended claim 1, and are allowable along with amended claim 1. Claims 26, 27, 45, and 46 depend from amended claim 24, and are allowable along with amended claim 24. Accordingly, withdrawal of the rejection and allowance of all of the claims are respectfully requested.

Claim 49 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Kwon in view of Jung, further in view of U.S. Patent No. 5,128,735 ("Ohmi"). Applicants respectfully traverse this rejection.

The Office Action states that claim 50 is "objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims." Office Action at 5. Claim 49 has been amended to include all of the limitations of dependent claim 50. Claim 50 has been canceled. Accordingly, Applicants respectfully submit that amended claim 49 is allowable.

In view of the above amendments, Applicants believe the pending application is in condition for allowance.

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Respectfully submitted,

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